

THE INDIAN WILD DOG.

BY

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(With 3 plates and 1 photo).

The Journals of the Bombay Natural History Society contain several informative and interesting articles concerning the Wild Dog of India, as also a considerable number of sportsmen's observations embodied in Miscellaneous Notes scattered over a period of many years: and in Mr. A. A. Dunbar Brander's authoritative work 'Wild Animals in Central India', published in 1923, is a chapter on the Wild Dog which is almost exhaustive on the subject.

Former issues of the Journal are, however, not possessed by the majority of present Members, so this article is contributed to collect in one place all information the writer is able to record from the writings of others, and his own knowledge, concerning this interesting animal, and the varieties found in Burma and the adjoining countries.

The Wild Dog is widely distributed throughout the Indian Empire, and most sportsmen have met with the species during their jungle expeditions; but the experience of any individual sportsman is limited, and not all of them have been particularly observant.

Captain Williamson's well-known and sumptuous work was perhaps the first book on the wild sports of India, but is unfortunately not available to me for reference. Dr. Daniel Johnson's *Indian Field Sports in Earlier Days*, which attained a second edition in 1824, followed soon after, and in it he relates that he saw 'Dholes or Quihoes several times and have heard it said that their claws are retractile, if so they may be considered as belonging to the feline species;—and as they are armed with talons they must be very formidable.' So we know the good Doctor was not very strong in Natural History. I cannot trace that word *Quihoe*; it is not in Hobson Johnson.

In a book concerning the game of South India, 'Game' by 'Hawkeye' (Major-General Richard Hamilton), published in 1876, the author says that in former days (the Nilgiris were first 'discovered' in 1818) wild dogs were often met with on the Hills in really formidable numbers, and he himself remembers seeing a very large pack sweeping across the head of the Ootacamund Lake.

'People in those days were alarmed at meeting these dogs, under the idea that they were somewhat akin to the wolves of Siberia, and would not scruple to attack and devour unarmed men. Certainly they exhibited little or no fear of man; but sportsmen hesitated to shoot them when in packs under the above impression—that they were liable to attack, and when once their fire-arms were discharged, they would be at the mercy of the rest, and would probably "sup sorrow".'

In *The Highlands of Central India* (1872) page 343, Captain J. Forsyth mentions a breed of fine, large, red-coloured pariah

dogs which was the indigenous dog of the Upper Narbada forest country, and suspected them to be descended from the wild species inhabiting those jungles. The most noticeable distinction between the wild dogs and the tame pariahs was that the former carried their tails never raised higher than the line of the back while the latter raised their tails at times a good deal higher, with something of a curl. Another difference was that the wild dog could not bark. So much did this breed resemble the wild dog that on one occasion Forsyth allowed what afterwards proved to be a wild dog to escape, thinking him to be a strayed red pariah.

It was suggested by Professor H. Littledale in his interesting article (*Journal*, Vol. vii, page 499) that the dental and other characteristics of these should be compared, but there is no record of this having been done. There is reason to believe that this breed still exists, so perhaps some member of our Society can procure skins and skulls for this purpose.

The wild dog and the jackal interbreed on occasion, also the jackal and the pariah dog (Vol. xxx, page 698). A photograph of a wild dog bitch with her two pups, sired by a jackal in the Mysore Zoo in November 1930, is published at page 198 of Vol. xxxv; so there is no reason why breeding between wild dog and pariah dog should not have resulted in a breed of red pariahs.

The true Indian Pariah Dog is mostly red in colour. At page 165 of Vol. xiv is an interesting article by Lieutenant-General Osborn on the sheep and pariah dogs of India. He describes how a single red pariah dog pluckily bayed a wounded man-eating tigress which he would certainly not have been able to kill had it not been for the assistance of this dog. He also relates how a village shikari of Mysore used his red pariah dog to attract ducks within shooting distance of his lake-side pit, just as in some English decoys the well-known habit of wild birds to curiously follow or mob their natural enemy has been used by means of a trained dog of suitable reddish colour to entice wildfowl to captivity. Much has come from the East to the West: perhaps this is an instance. A description is also given of a pack of these red pariahs, owned by Benders of Ramandroog, 40 miles from Bellary, hunting and killing sambhur after the manner of *Cuon*.

At page 709 of Vol. xiii is a very interesting article on the Sheep Dogs of India.

Wolves, jackals, foxes, and domestic dogs are all comprised in the genus *Canis*; Blandford being of opinion that the latter are apparently descendants of several wild forms amongst which the common wolf and the common jackal are the two principal.

An Editor's foot-note to page 699 of Vol. xxx may be here suitably inserted.

'The origin of the domestic dog is still involved in mystery. Some Naturalists believe it to be a distinct species descended from one that no longer exists in a wild state, others trace its ancestors to the wild or half-wild races either of true dogs, wolves, or jackals; while others believe it to be the result of mingling of two or more wild species or races. Blandford is of opinion that the common Indian pie-dogs may be in part descended from wolves; he adds, however, that they are probably derived chiefly from jackals.'

Darwin, discussing *The Origin of Species*, admits that domestic dogs are descended from several wild species, but remarks that there has been an immense amount of inherited variation. Blandford quotes Darwin's opinion that:—

'It is highly probable that the domestic dogs of the world have descended from two good species of wolf (*Canis lupus* and *Canis latrans*), and from several races or species of the jackal.'

The wolf, *Canis lupus*, is of great antiquity, its bones having been found in Post-Pliocene (pre-glacial) deposits of the Quaternary formations of the 'Cromer Forest-bed' together with those of various extinct mammals. It is quite possible that some of the world's domestic breeds are descended from wild species long since extinct.

The genus *Cuon*, to which the Asiatic Wild Dog (*Cuon javanicus*) belongs, is distinguished from the genus *Canis* by the more rounded ears and proportionately shorter muzzle; by the line of the face viewed sideways being slightly convex, that of *Canis* being straight or concave, and by having only two true molars on each side of the lower jaw instead of three. The mammae are more numerous, there being usually 6 or 7 pairs instead of 5 typical in *Canis*. Blandford mentions the long hair between the foot-pads, but this is not unusual in many species of *Canis*. In other respects *Cuon* agrees generally with *Canis*.

A LARGER AND A SMALLER SPECIES.

In his interesting article (Vol. vii) Professor Littledale touches upon the remark of Jerdon (*Mammals of India*, 1867, page 145), also mentioned by Sterndale, that it has been supposed there is more than one species of wild dog to be found in India. There has been in earlier days a belief prevalent among sportsmen of the existence of two races. Colonel A. E. Ward's *Sportsmen's Guide to Kashmir*, page 88, is cited as recording the assertion of Kashmir native shikaris that there are two species, the smaller breed destroying sheep and goats and keeping low down in the ravines, the larger hunting in the higher mountains.

This belief in a larger and a smaller breed is prevalent even in the present day in the jungles to the north of the Nilgiri Hills and along the Mysore border. At page 516 of Vol. xxxi an Editor's Note mentions the same belief being held by the Nagas of the Mishmi Hills.

Mr. R. C. Morris mentions the matter at page 491 of Vol. xxxvi, referring to the possibility stated by A. J. W. Milroy, Conservator of Forests, of there being two kinds of wild dog in Assam, a larger species hunting in pairs and a smaller type hunting in packs. He (Morris) 'has noticed that wild dogs often hunt in pairs, and these appear to be considerably larger than even the leaders of dogs hunting in packs'. In the Central Provinces one sees these pairs of dogs, as also all sizes of dogs in packs.

Mr. L. E. C. Hurst (C.P.) tells me he has only seen these pairs in the breeding season, say November to March, and not at other times of the year.

The present writer has observed that wild dogs of the Siwaliks and Doon Valley appear to be larger animals and of a brighter red than those of the Central Provinces and South India, but obtained no specimens.

Professor Littledale's suggestion that the small breed is really a pack of females and young dogs is no doubt the correct answer to this question. Had there been a larger and a smaller species in India the inevitable interbreeding would have merged the two races long ago.

SPECIES AND RACES OF THE WILD DOG.

The Asiatic Wild Dog has a wide habitat. Pocock (P. Z. S., 1936, p. 34) gives its distribution as ranging from 'Saghalien, Amurland and the Altai Mountains, about lat. 50° N., over the whole of continental Asia, roughly east of Long. 70° E., and occurring in the Islands of Sumatra and Java, but not in Japan, Ceylon¹ or Borneo'. Within this wide range the older Zoologists claimed to recognise two or even three distinct species. Blanford recognised a northern and central Asiatic species under the name *C. alpinus*, an Indian species, *C. dukhunensis* and a Malayan species which he called *C. rutilans*. Pocock (loc. cit.) having at his disposal the great mass of material made available in recent years, concludes that in all Asia there is a single species of Wild Dog, to which he assigns the name *Cuon javanicus*; *javanicus* is the name first applied to any form of *Cuon*, and it therefore antedates *dukhunensis* by which our Wild Dog has become more generally known. Pocock recognises a number of local races. The form found in the Indian Peninsula, south of the Ganges, and also in Assam, he names *Cuon javanicus dukhunensis* Sykes, distinguishing it by its larger skull from the typical Javan Wild Dog (*C. j. javanicus*) and from *C. j. sumatrensis*, found in Sumatra and the Malay Peninsula, by its longer, fuller coat, yellower, less vividly red-colouring and again by its larger skull. The race found in the Central and Eastern Himalayas through Kumaon, Nepal and Sikkim is *Cuon j. primaevus*. Pocock distinguishes this race from the Peninsular form as being on the average redder in hue, fuller in winter coat, more amply provided with under wool and more hairy-soled. These distinctive characters he states are evident from puppyhood. The Wild Dog of Kashmir is recognised as a separate race to

¹ The wild dog is not found in Ceylon, where the jackal takes its place, and is occasionally known as a hunter and destroyer of hinds and fawns, but not to anything approaching the terrible efficiency of *Cuon*. The Ceylon jackal (*Canis lanka*) seemed to me a larger animal than *C. aureus*. It would be interesting to have a series of weights and measurements of both species.

Mr. W. W. A. Phillips gives me measurements of Ceylon Jackals as under :

Male—one only—head and body 30.5 in., tail 9.5 in., hind foot 5.3 in., ear 2.9 in., weight about 20 lbs.

Female—average of four—head and body 27.1 in., tail 7.9 in., hind foot 5.3 in., ear 2.9 in., weight 14½ lbs.

Maximum females—27.4 in head and body, 8.97 in. tail, 5.3 in. hind foot, 3 in. ear, 18 lbs. weight.

which the name *C. j. laniger* is assigned. Pocock distinguishes the Kashmiri from the Central and Eastern Himalayan Wild Dog by its much fuller, softer coat and much paler colouring. No material is yet available to establish the identity of the Wild Dogs of Burma, though Pocock has described a new race from Moulmein for which the distribution given is 'North Tenasserim and possibly Annam'. To this form he gives the name *C. j. infuscus*, distinguishing it from the *javanicus* and *sumatrensis* mainly by cranial characters.

THE INDIAN WILD DOG.

Colouration.

From time to time sportsmen bring to notice variations in colour and in size. These can safely be said to be caused by environment, more or less abundant food supply, and climatic differences in various parts of the extensive region inhabited by this widely distributed animal.

Blandford describes the colour of *C. j. dukhunensis* as follows :

'On upper parts generally rusty-red, varying in some specimens to rufous gray or even light brownish gray, paler below. The colour is generally not uniform, being variegated by dark tips to the dorsal hair. The under-fur, when present, varies in colour from light brown to dull rufous on the upper parts, and has light coloured coarser hairs intermixed; the longer hairs are light rufous, with dark rusty-red tips. The terminal portions of tail black (very rarely the extreme end is whitish). The young animals are sooty brown throughout.'

Dunbar Brander's description is :

'Uniform red, shading into yellow or dirty white on the belly. The points of the hairs along the dorsal ridge are often black. The ears, which are pricked, are frequently pointed black. The tail, which is short (about 8 inches) has a bushy tuft of black hair some 5 in. or 6 in. long at the end. There are generally a few gray hairs in the middle of this black tuft, and it is not uncommon for these hairs to be sufficiently numerous to amount to a small white tuft within the larger black tuft.'

He adds, differing from Blandford as far as the wild dog of Central India is concerned, that the existence of the white tip is much more common than the black tip.

In an Editor's foot-note at page 516 of Vol. xxxi it is remarked :

'In colouring the wild dog varies from uniform red to rufous gray or even light brownish gray. As regards the colouration of the terminal portion of the tail, — of a series of thirty-four skins obtained in India and Burma all except four have black tips to the tail, including specimens from South India and Canara — of ten specimens in the Society's collection obtained in the Berars and C. P. seven have black tips and three white.'

There are often white hairs at the end of the tail not visible unless the longer black hairs are parted. At page 590 of Vol. xxxii it is recorded that three three-quarter grown specimens shot from the same pack (U.P.) had : one a black tail tip, one a few white hairs, and the third a distinct white tip to the tail like that of the Silver Fox.

Mr. R. C. Morris notes that wild dogs, when killed, seem to lose immediately the 'gloss' of their coats : so also with *Hyænas*.

Melanism.

This appears to be uncommon: only two instances are recorded, and one of these is not very reliable. At page 813 of Vol. xxxviii R. C. Morris reports that Mr. V. G. Darrington, D.F.O. of North Coimbatore, saw on the 11th January 1936 near Geddesal a wild dog which was wholly black with the exception of a white tip to its tail. I was at Geddesal at the end of January that year and saw wild dogs but did not, unfortunately, come across the black one.

At page 215 of Vol. xx it is reported by Major H. W. Berthon that his men saw 7 or 8 wild dogs of which one was '*bilkul kala*' (wholly black); there was a great variety of colouring and one of the animals shot proved to be a jackal.

Mr. S. D'Arcy McCarthy tells me he saw a wild dog in the U. P. with a white patch extending from the neck down the shoulder. It was not shot.

No instance of melanism can be found in any book seen by me.

Weights and Measurements.

Recorded weights and measurements of *Cuon* of both species are scanty, and it is suggested that sportsmen should make a point of recording all they can from all parts of India and Burma for communication to the Society. Those to be found in the Journal and other publications are tabulated below:

Vol. vii p. 503.	Head and body	34 in.	Tail with hair	17 in.	Height	20 in.
Vol. x p. 449.	Do.	35 in.	Do.	17 in.	Do.	19½ in.
Vol. xiii p. 529.	Do.	34½ in.	Do.	17 in.	Do.	21½ in.
Do. p. 529.	Do.	34½ in.	Do.	17 in.	Do.	18½ in.

All the above females.

Vol. xxxii p. 714. Do. 38 in. Tail 14 in. weight 28 to 32 lbs.

This is from Kashmir and gives average measurements.

Major E. G. Phythian-Adams (Nilgiris).

Male 36 in. head and body, tail without hair 12 in., height 18 in., girth 21 in., neck 12½ in.

Male 36 in. head and body, tail without hair 13 in., height 20 in., girth 20 in., neck 12 in.

Game-Book for Burma. length 48 to 54 in. of which tail rather more than a foot long; weight 35 to 40 lbs. *Cuon rutilans*.

Blandford's measurements are obviously unreliable and are not here given.

Sterndale and Jerdon: Head and body 32 to 36 in., tail 16 in., height 17 to 20 in.

Dunbar Brander M....22 in. at shoulder, weight 43 lbs.

F....half an inch shorter and 5 lbs. lighter.

It is apparent how many more data are needed.

Breeding, Taming, Characteristics, and Disposition.

As already mentioned the mammæ may number as many as sixteen. Most writers say fourteen. Eight pairs are mentioned by Pocock at page 851 of Vol. xxxix. The mammæ are not



necessarily in even numbers on either side. On page 449 of Vol. x, eight on one side and six on the other side are mentioned as having been counted by Mr. Inverarity.

The number of young at a birth may vary from two to six or more. In 'Robin Hood's' article (Vol. x, p. 127) six puppies are instanced. At p. 442 of Vol. xxxv litters of seven and ten are mentioned by me, also a case of seven embryos being taken from a shot animal. Major Phythian-Adams tells me that he himself took nine embryos from a wild dog shot by him on the Nilgiri Hills; and his chauffeur took seven pups from an earth where there was a bitch from the pack on guard. At this place a number of the dogs were breeding; there were many earths; a regular pack nursery! Such places are not uncommon: I recollect one in the Biba shooting block, C. P., where there were several earths—crevices in rocks in a nala bed.

At page 529 of Vol. xiii is an excellent photograph by Inverarity, reproduced here, of five wild dog puppies lying outside the earth from which they were taken on the 27th December in Gugamul Block, Melghat Forests, C. P.

'The puppies (three males and two females) were at least a week old. Three had ticks on them. They were a uniform dark brown colour, slightly yellow about the neck, and were exactly like pointer puppies, as will be seen from the photograph'.

'Robin Hood', Vol. x, p. 127, described his six puppies as 'six lovely little russet-red balls of fur'.

They were reared by a village pie. The first pie, which had five pups of her own, was so horrified at their odour that she would have none of them. The second pie, with three pups, after a great deal of trouble, became as attached to the jungle puppies as to her own. This was no doubt due to the fact that, in the course of a week or so, her own puppies got to smell as badly as their jungle confrères. At a very early age the jungle puppies evinced an incorrigibly pugnacious disposition, and fought with appalling ferocity. It was incredible to see such small things fighting with so much resolution and tenacity. If the uppermost belligerent were lifted by the tail to the height of one's head it would carry its opponent up with it, and the latter would likewise decline to relinquish its hold. They would fight in this way day after day, the sluts being quite as tenacious as the dog puppies. The unfortunate pie-pups must have wondered into what company they had fallen. They would yell piteously when the wild foster brethren shook them up, and we were obliged to send them away when quite small to prevent them getting killed. Meanwhile the wild pups continued to fight with each other with unabated ferocity until they were about seven or eight months old when—most singular to relate, they put a permanent period to their hostilities and lived in perfect amity. Apparently they had decided which was the strongest amongst them, as they paid marked deference to one large dog—the largest among them—who acted as their leader. They never fought with each other after they became adults. The big dog above referred to had a white spot on the near forepaw and the extreme end of his tail was tipped with white. This was observable only on a close and critical scrutiny. The other dogs were similarly marked; the remaining three were entirely russet-red. They all had large prick ears (which they laid back flat like a vicious horse when angry or attacking), and long, heavy, bushy tails. They would eat nothing but raw meat. We nearly starved them to death in the endeavour to make them eat cooked food, but without avail. They would eat nothing but flesh, and not that unless it was raw. They would not eat stale meat. . . The dogs were dangerous to approach when feeding; but could be handled at any other time.

They would never molest men; but would 'go' for any and every animal. In consequence they had to be kept on the chain. When they broke loose, which not infrequently happened, they did not attempt to escape, but always kept about the house. They all met untimely deaths. One died while still a pup from confinement in a basket—they appear to require plenty of fresh air—another died while *en route* to a railway station; and the remaining four from diarrhoea engendered by a cannibal propensity they had of killing and eating any stray dog they could get hold of.

My observation of these dogs has convinced me that for gameness, staunchness, and invincible tenacity we have no breed of domestic dog to compare with them.'

Major Phythian-Adams tells me that the above exactly corresponds with his own observations of wild dog puppies kept by him.



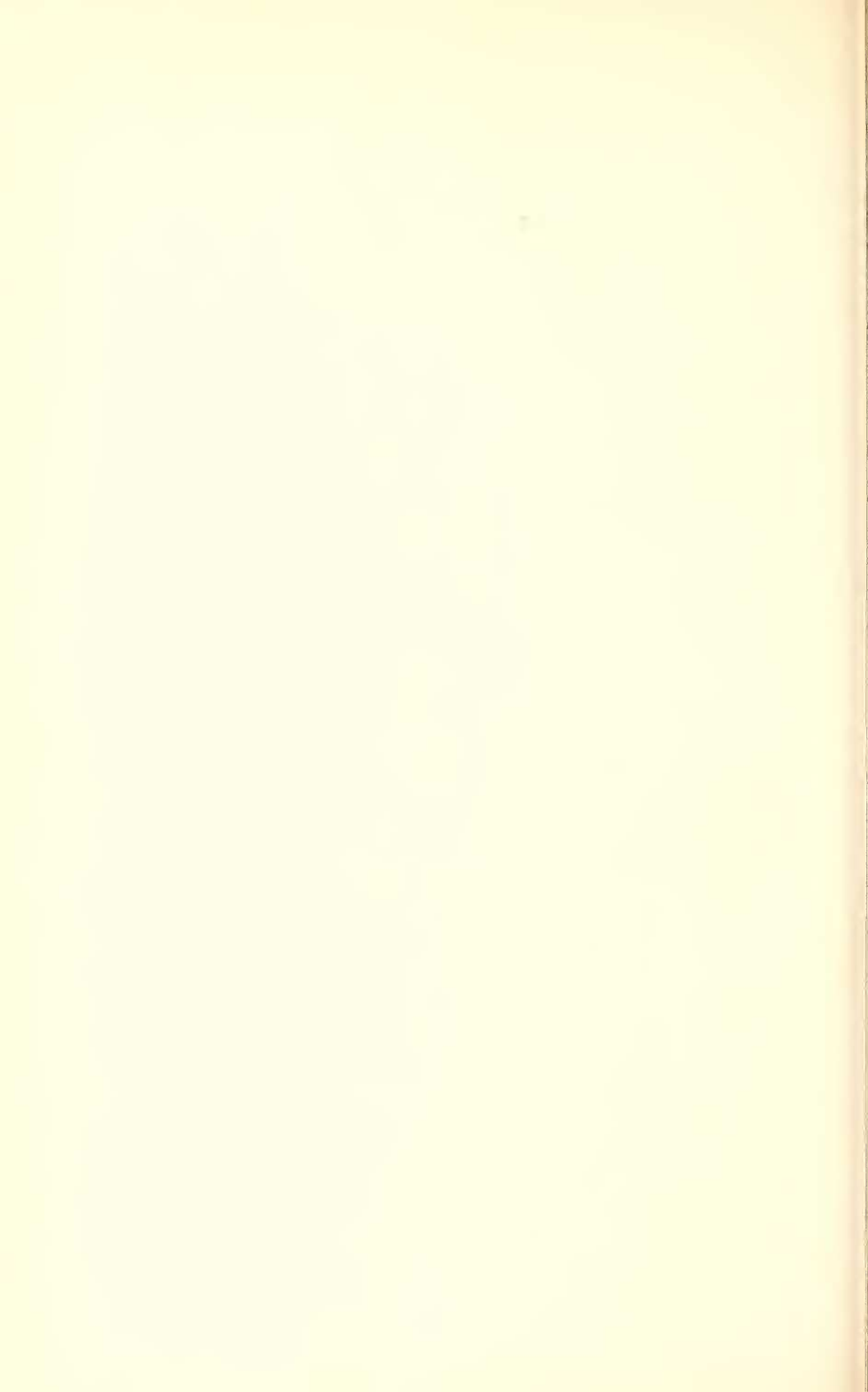
M. Charles Theobald's Wild Dog.

The wild dog can be tamed, but has to be taken in hand when very young. Here is a photograph of one of a pair possessed by Mr. Charles Theobald of Mysore for about two years.

'This pair were not related, having been captured in the forest in different localities, and were about a month old when I got them. At first they had the strong smell characteristic of most wild dogs, but this wore away with regular baths, and then they smelt the same as domestic dogs. Both matured in about a year, and were mated. One pup was born in November but was accidentally bitten by the mother at time of birth, and died.



Indian Wild Dog Puppies.



Although the dogs were quite tame they were difficult to manage and were not savage. No strangers could go near them. The period of gestation was about the same as that of the domestic dog. The noise the dogs made most was the usual soft whistling one to call to each other, or to me. They would come to me when called. When distressed they would whine, and utter a suppressed bark when angry.

When excited they wet themselves, and the urine would be splashed about by whisking tails. The urine had no bad effect on human eyes. That was a personal experience.

They were fed with milk in the mornings, raw meat in the day, and ordinary dog's food in the evenings. Sheep's leg with hair on was regularly supplied. Food was digested and passed in about twenty four hours.

As to the last sentence it is probable that, in a wild state, food is passed in a shorter time than this. Phythian-Adams' pups were fed much as above.

It will be noticed that this feeding experience differs from that of 'Robin Hood'. It is a pity that the gestation period was not exactly noted, as there appears to be nowhere any record of this.

Here is a photograph of two wild dog puppies possessed for a short time by Major Phythian-Adams. At time of photo they were about two months old and did not live long after that.

It may be noted here that until the young ones are able to leave the place where born they are fed by partially digested meat vomited by the mother. Breeding season is from November to February.

Popular names.

To the sportsman and the general public *Cuon* will always be known as 'Wild Dog' although, as Blandford says, the name is clearly a misnomer; for in every important detail in which the genus *Cuon* differs from *Canis*—form of skull, dentition, number of mammae—domestic dogs agree with the latter and not with the former.

Vernacular names.¹

Assamese	Kuang-kukur or Rang-kukur.
Bengali.	Ban Kutta or Ban-kukur.
Bhil.	
Bhutanese.	Phara.
Burmese.	Tan-kwe.
Canarese.	Ken-nai, chen-nai.
Chenchu.	Reis-kukul.
Chin.	Nyar.
Gond.	Nerka.
Gujrati.	Eram-naiko.
Ghurkali.	Ban-kukur.
Hindi.	Adivi-kuta, Son-kuta, Sona-kuta, Rasa-kuta.
Hindustani.	Jungli-kuta, Ram-kuta, Ban-kuta.
Javanese.	

¹ I am indebted to Mr. C. G. Mackarness, Senior Conservator of Forests, Assam, Mr. W. Meiklejohn, Senior Conservator of Forests, Bengal, and Mr. F. W. Champion, Conservator of Forests, Western Circle, U.P., and to Mr. F. J. Musthill, Game Warden, Burma for assistance in compiling this list. Will members able to add to the list of local names, kindly communicate with the Hony. Secretary.

Kachin.	Kyi-kwa-lam.
Kashmiri.	Jungli-kuta, Ram-hun, Bân-kuta. Bhansa (E. Himalaya).
Khond.	
Korku.	Bun-seeta.
Lepcha.	Sa-tun.
Mahratti.	Hahmasai-kuta, Kolsun, Kolsa, Kolasri.
Malayalam.	Shen-nai.
Nepali.	Bwaso.
Malay.	Sirgala, Arjing-kutar.
Punjabi.	
Shan.	
Tibetan-Hazi.	Phara.
Siamese.	
Tamil.	Chen-nai.
Telugu.	Vanna-kooka.

Odour.

Blandford remarks that the strong and unpleasant odour of *Cuon* resembles that of the jackal, this being due, in part, to secretion from the anal glands. But this is not always the case, as some observers have described the wild dog as having the exact smell of the domestic dog; e.g., Inverarity, who was an experienced and reliable sportsman, at page 394 of Vol. viii relates having shot one of a pack. 'It was a female and had the exact smell of a domestic dog.' See also Mr. Theobald's notes.

Voice.

The difficulty in describing the various voice sounds of the wild dog is apparent from the writings of naturalists and sportsmen. The word *bark* has been used but does not convey a correct impression. Voice noises *growl*, *suarl*, *whine*, are almost the same as those of the domestic dog. The mate call mentioned by Dunbar Brander I have, unfortunately, not heard. The sound uttered when startled, alarmed, or at time of disputing a tiger or panther kill, as I have myself heard, is a sort of hyæna-like chattering—'analogous to the 'chuck, chuck, chuck' of the Indian fox.' (Dunbar Brander).

The sound used when the dogs are communicating to one another otherwise than when hunting is difficult to express. A sort of soft whistling noise seems best to describe it. 'Their usual call is a highly pitched whine'. (Best).

Other noises described are: 'A weird bewildering noise—such as I had never before heard in the jungles—' described afterwards by a friend who was with him at the time as 'a kind of fiendish hysterical yapping, in a shrill chorus, decidedly uncanny and all-pervading.' This was when Professor Littledale's terriers rushed into bamboo cover near his camp in the Central Provinces. The hunting notes are variously described. 'Hawkeye' mentions 'a tremulous whimper'. Havelock 'a whistling howl when running to view'. Inverarity saw two dogs, which hunted a sambhur hind and fawn into a fast-running shallow stream, halt at the water's edge and utter 'loud wailing howls'; these, until they reached the

water, and on another occasion a pack also, ran mute. I have seen dogs running mute several times and think that when first on the trail they run mute, when the scent tells them they are nearing the quarry they whimper, and when they run to view, or are closing on the quarry, they break into what has been called 'full cry': this is not the music of foxhounds but 'an indescribable howl'. The above is not always the case. The hunting cries have also been described as a 'sort of yapping bark'; this in Nepal. Major Manners Smith could not say they were 'in full cry' but they were evidently hunting, probably *thar* or barking deer. In Burma Mr. C. E. Milner one night in Tharrawaddy heard a pack 'in full cry, rather like a poor-voiced pack of hounds.'

Whistle, whine, whimper, yap, are voice noises mentioned by Major Phythian-Adams, who has never heard them 'bark', as they are said to do by 'Hawkeye'. Best also uses this word, but it is not the bark of a domestic dog: a more hoarse sound. Colonel A. E. Ward writes 'when running by scent they only whimper, but when the prey is in sight and at hand they often break into an indescribable howl'. A night hunt in Nimar is described as 'frenzied whimpering cry'. Mr. La Personne writes of wild dogs hunting at night as 'baying' but that would not, I think, convey a correct impression.

The Indian Wild Dog does not *bark*: domestic dogs turned loose on the island of Juan Fernandez quite lost their bark after 33 years. (Sterndale).

Calling up.

Major Phythian-Adams informs me that wild dogs can be successfully called up by a series of 3 toots' on an empty '318 cartridge case, these representing the three whistling notes of the dogs calling to one another. This method is best employed after one of a number has been shot; but will also call up from near-by cover a single dog, or one of a pair, which has been seen. Another method found successful is the use of a leaf blown upon edge-ways between the thumbs, as employed in Burma for barking deer. It is useful when no shot has been fired. This leaf noise has been mentioned by writers in the *Journal*, and is known to many sportsmen. It is mentioned by Dunbar Brander.

Best (Indian Shikar Notes) describes a similar leaf noise used by him with great success. R. C. Morris describes their calls to each other as a shrill 'ow, ow, ow', the noise being similar to that produced by blowing into a medium bore cartridge case, as described by Phythian-Adams.

Blinding eyes of animals with urine.

Most writers remark upon the belief held by jungle inhabitants of all parts of India where *Cuon* is found that the animal deliberately makes use of its urine to blind game being hunted, either by sprinkling bushes with it and then driving the animals through them, or whisking it into the animal's eyes with their tails. This

belief, which will probably never be relinquished by the jungle inhabitants of India and other Eastern countries, is mentioned by Dr. John Fryer in very early days; also in Williamson's 'Oriental Field Sports'. Blandford remarks that a somewhat similar belief is held as to wolves in parts of Europe.

Although we know much of wild life lore of jungle peoples is accurate, or has a substratum of fact, yet in this matter it can be safely asserted that the wild dog's urine has no special blinding property, and that the animal does not deliberately use its urine as an aid to hunting.

Likes and dislikes as to meat.

In his *Game-Book for Burma* Mr. Peacock rightly states that wild dogs generally demolish their kill at one sitting, but adds that they desert their kills, if any meat is left, at the first sign of decay: also that he has not known or heard of their touching carrion, though it is likely enough they may do so when very hungry. Dunbar Brander remarks that high or contaminated meat is distasteful to them and their kills are therefore nearly always finished off by vultures.

It is within my own experience on several occasions, and that of other sportsmen, that wild dogs will appropriate a tiger or panther kill should they come across it. No doubt they prefer fresh meat—that of animals they have themselves hunted, but they do not refuse meals accidentally found. In the C. P. a large pack demolished the carcass of a skinned tigress thrown outside my camp. R. C. Morris notes that he has personal experience of at least a dozen *stale kills* being eaten by wild dogs in the Billigirirangam Hills of South India, and the North Coimbatore forests adjacent to them.

The following note shows that they will sometimes eat very foul and disgusting meat, but it is perhaps a rather exceptional case. R. C. Morris' Note dated 6-2-1937 at page 615 of Vol. xxxix may be quoted in full:—

'I recently shot two wild dogs, a male and a bitch, which were as badly affected with mange as I have seen on any pie-dog. The dogs were feeding ravenously on a three-days-old tiger kill and seemed to be quite active. With the exception of the head, which was blotchy, and the ridge of the back the dogs were almost devoid of hair including the tail. The short pig-like tail, free of the brush or hair, and the pink and mangy flesh appearance of the flanks and stomach gave the dogs quite a revolting appearance.'

Peacock also writes that he has never known his tiger or panther baits to be found or killed by wild dogs. This is contrary to the experience of sportsmen in India, more particularly in the Central Provinces, where it is no uncommon occurrence for tethered baits to be killed by wild dogs.

Domestic stock.

Wild dogs do not ordinarily attack herds of cattle grazing in the forests, though there have been a few instances of the kind recorded. The Author of 'Nilgiri Sporting Reminiscences' (1880)

writes that:—'.....they make frequent attacks upon the Badaga's buffalo calves, and the ryot's sheep and cattle of the low countries. A pack of fourteen or fifteen wild dogs, about five years ago, committed a raid upon a herd of about thirty calves whilst out grazing, belonging to the Westbury Estate, Seoor, and killed five and wounded two of them which died some days after; before I could get with my guns to the spot they had been scared away.'

Such an affair as the above is exceptional, but Phythian-Adams tells me that he knows several cases of buffalo calves being killed out of Badaga herds near Anaikutti: and R. C. Morris notes to me that under certain conditions, in the absence of game animals, it is within his experience that wild dogs will stay in a locality and kill cattle. They did not kill cattle all the time, but did so in the dry weather when the sambhur were noticeably scarce. He adds that some years ago there were a large number of pig in those hills (Billigirirangans): wild dogs then increased and killed scores of pig; since then pig have become quite scarce.

In the other parts of India they occasionally kill single cattle and goats, but it is not a common occurrence. In Kashmir they often worry sheep in the open country'. (Ward).

R. C. Morris sends me the following interesting note:—

'Wild dog, a large pack, killed 25 calves here in one year, including six in a go, that were grazing together. This occurred at the time when wild dog were numerous. Stray mature cattle were also killed and devoured; so much so that the Badaga herdsmen at Bellaji (where you camped once) asked me for poison. I gave them 'Atlas' with instructions to dilute with two parts of water. This the herdsmen did not do, but used the neat poison on a freshly killed carcase, and then retired to watch events. The dogs returned and completed their meal, but were soon lying around in great distress. The Badagas told me that there were about twenty in the pack, and as the reward for wild dog is Rs. 10 per head in Kollegal and North Coimbatore they were delighted at the prospect of earning Rs. 200 by the poisoning of the whole pack. To their consternation however the dogs, one by one, commenced to vomit up what they had eaten, and eventually made off. Before this they could have been clubbed to death easily, apparently, but the Badagas were afraid to approach the pack. I was away at the time. This had the effect of curing the dogs' desire for beef for some time.'

It is curious that wild dogs do not molest bullocks in a cart, or attack a pony ridden past a pack lying about by the side of a forest road. Postal runners, frequently killed by tiger or panther in certain parts of India, are never killed by wild dogs. It is fortunate indeed that they have a non-hostile disposition to man and, mostly, to domestic animals.

Game Animals.

Wild dogs kill a great many game animals, as also wild pig. To their diminishing the stock of the latter there is no objection, for these do much damage to cultivation; but their ravages among game animals are often very serious. With the exception of fairly mature bison and buffalo they kill almost all forest animals.

It is fortunate that they do not kill, as does the Dingo of Australia, for the sake of killing, but only when hungry. An instance illustrating this is noted to me by Mr. R. C. Morris who,

with Mr. C. W. G. Morris, saw a pack of wild dogs, obviously well-fed, lying about on a grass hill-top while sambhur walked, tails stiffly erect, right up to them. Apart from eyeing the deer lazily the dogs did not stir. After a few minutes the sambhur trotted off for a short distance and then commenced to graze! Some time later the dogs moved off slowly in the opposite direction.

On the Nilgiris Plateau the wild dogs kill black monkeys which probably leave the safety of trees and race across the open slopes. (Phythian-Adams).

At page 165, Vol. xli, Mr. Dunbar Brander comments upon the extraordinary behaviour of monkeys when attacked by leopards and by dogs (presumably domestic dogs), having known them to abandon the safety of the tree-tops and take to earth to their destruction, and remarks 'In this respect an animal which must be considered as intelligent, behaves like an imbecile.'

I, also, have observed similar instances, but have noticed that it was on seeing the human being the monkeys, or lungoors, vacated their arboreal safety; and the same has been the experience of friends with whom I am staying near the Periyar Lake, Travancore, at time of writing. I have known, on a moonlight night, a pair of panthers acting in concert chase lungoors out of a tree: this being no doubt a normal method of hunting these creatures to their destruction.

That the imbecility remarked upon by Mr. Dunbar Brander is not confined to the lower species of Primates is instanced by the fact that a woman of the Kumaon Hills—sister of the village shikari employed by me in 1924 during pursuit of a man-eating tiger—was killed by the tiger because, when in the safety of a tree gathering oak leaves for cattle fodder, other women being in adjacent trees, and the tiger came under her tree, she cried out 'The tiger has got me! The tiger has got me!' and fell from her secure perch into the animal's jaws!

A week or so previously her aunt had been taken by this tiger when similarly gathering leaves, but was stalked while on the ground.

It would seem that black monkeys of the Nilgiri sholas are frightened out of trees by wild dogs, and perhaps the same thing happens in forests of the plains, but I rather doubt it.

Mange.

That many pariah dogs are mangy we know, and this may be communicated to wild dogs. But wild dogs do not ordinarily have much to do with village dogs. In addition to the instance above quoted Mr. Morris informs me that when some years ago wild dogs were at their peak in numbers in the Billigirirangan Hills they appeared to have developed mange very badly. In 1938 three very mangy wild dogs galloped down the ghat road for some distance in front of his motor car.

Major Phythian-Adams draws my attention to the fact that mangy skins are sometimes produced for rewards in the Nilgiri Hills and writes:—'Some of the dogs killed in 1937 were in a

very mangy condition; and a number were found dead, in 1893/94, probably from distemper, sometimes as many as three and four together in one spot.'

Besides the above instances from South India there is a case of mange noted from the C. P. at page 1046 of Vol. xxix.

It is likely that wild dogs, living in burrows and holes in the ground and among rocks as they do, may develop their own skin diseases.

Destruction of Wild Dogs.

Records of the Nilgiri Game Association show that, during twenty-one years since 1912/13 for which figures are available, the average yearly destruction of wild dogs in the area controlled by the Association was 38. It may be that some of the skins for which rewards were paid were imported from jungles outside the Association's area. The reward at the present time is twenty rupees.

In these days, when the stock of deer in all parts of the country is rapidly lessening, it should be the fixed policy of the Imperial Forest Department to offer Government rewards of sufficient amount to encourage the continual destruction of the wild dog in all Reserved Forests.

Poison.

Apart from the offering of rewards, resulting in the digging out of litters from earths and shooting of dogs in the jungles, the animals can be readily poisoned; but this can only be done *under proper supervision which must include fool-proof precautions against any possible accident.*

Strychnine is the poison generally used. Care has to be taken not to use an over-dose. The correct strength appears to be 10 grains to a half pint of water. Strychnine bihydrochloride should be used as it readily dissolves, whereas ordinary strychnine does not. The poison should be poured into deep stabs and cuts and sprinkled on lumps of semi-detached meat.

The failure of strychnine when used in powder form is well instanced by Mr. R. C. Morris, who writes to me on the 17th December 1939:—

'A pack of 14 wild dog was found feeding on a tiger's kill (a buffalo, 24 hours old, the kill I mean!) here yesterday by my men. I went out with my daughter and found the dogs complacently sitting around, within a few yards, watching my men put up a machan (useless of course after wild dogs had been at the kill). We shot two, and then poisoned the kill by sprinkling one ounce of strychnine powder over the open parts, the stomach cavity, the eyes and nostrils (torn out), and into gashes in the carcase. Solution of the stuff would have been better doubtless; the poison in the form of powder seemed to have no effect on the dogs whatever. They devoured the whole carcase, poison and all and seemed to suffer no ill effects; nor did I see any vomit.

The pack scattered in two directions on my arrival next morning; but, although they had gone for some distance, they returned when I imitated their calls with empty .375 and .256 cartridge cases, which they answered continuously. We thus got them within easy rifle range again.'

Another method, said to be very deadly (Dunbar Brander) is to inject a goat intravenously by means of a hypodermic syringe with a fairly large needle-bore. The injection should be made into a vein—one in the ear-flap is convenient—and a large syringe (20 c.c.) should be used. Care has to be taken that the bore of the needle remains in the vein and the point does not pierce to the other side on insertion. The strength of the emulsion for this purpose should be about 40 grains to the half pint.

For this goat method it is necessary to find a pool of water at which dogs are drinking, and sit over the pool to ensure that no one removes the 'easy meat' for home consumption. The goat will fall *apparently* dead, but there may be only extreme and exceedingly painful rigor of the muscles, so a blow at the back of the head with a suitable instrument after, say, half a minute, is humane.

Some sportsmen use 'Atlas' Skin-preservative in camp for preservation of skins. Precautions should be taken against accident, so the following excerpt from a Note by Mr. R. C. Morris on the subject, from page 338 of Vol. xxxix, is given:—

'I lost a herd of 24 buffaloes through their being allowed to graze on my boundaries where the undergrowth had been treated with diluted 'Atlas' Tree-killer. A planter in this District lost cattle through painting posts in a shed with 'Atlas' Wood-preservative: and cattle have been killed in South India and Burma through their coming in contact with spots where skins had been treated with 'Atlas' Skin-preservative; in every case the material treated with 'Atlas' being licked by the unfortunae animals.'

Attitude to Mankind.

I have been able to find only two instances of wild dogs being said to have been aggressive to man. Colonel Caton Jones (Vol. xviii, p. 194) relates that the wild dogs of Nimar were very bold; that they growled at him several times, and that just before he left the jungles the Forest Ranger informed him that four or five of them had attacked two forest guards who had killed one dog with an axe. He (Col. Jones) feared that unless these wild dogs of Nimar were killed they would soon become man-eaters. That was in 1907, but there were no subsequent happenings.

'Robin Hood' relates in his article—vol. x, page 127:—

'As I was walking along a game-track in the Nullamalais I came upon a dog stretched across the path. Instead of bolting away, as wild dogs generally do at the sight of man—the dog rose up reluctantly and slouched in a semi-circle, eyeing me with a sinister look. I was unarmed. The dog at length disappeared behind a bush, and I walked on marvelling at its strange behaviour. I had gone thus about a furlong when I happened to look behind and saw the dog rushing after me at full speed, with its nose to the ground (this was strange as it had already seen me). I immediately faced round with a large stone which I hastily picked from the ground. The dog rushed almost to my feet (still with its nose to the ground and not looking up!) and I hit it a severe blow with the stone, at the same time rushing to meet it with a loud shout. The shout appeared to alarm the dog more than the missile. It started aside and again semi-circled—while I retreated backwards—keeping my face to the dog—in the direction I had come. I did this as I should have gone into thicker jungle had I gone on. I felt convinced that the dog would again attack me there, and perhaps fetch other dogs to its assistance. In

this way I backed out of the jungle to my tent. It was fortunate for me that this dog was alone. Had there been others with it, its aggressive demeanour would probably have incited them to attack.

He sent for his gun, which had gone by a road to meet him further on, and remembering the dog was a slut with dugs nearly touching the ground searched the forest and eventually found a cave concealed in the undergrowth from which the six puppies were taken. During the night the mother came round the camp and the servants were throwing fire-sticks at her all night to keep her off. My impression as to this incident is that there was no intention to attack; it was the very natural desire of a mother to see a possible aggressor off the premises.

Native shikaris of Anaikutti below the Northern slopes of the Nilgiris say that if a single man comes on a pack eating a kill they will stand their ground: also that a mother bringing meat to her puppies earth will demonstrate.

European sportsmen have not recorded such experiences; but note of Caton Jones above cited may be referred to.

It is fortunate that the attitude of the wild dog to human beings is almost invariably wholly unaggressive: had it been otherwise, mankind in the forest areas would never have been safe from their attacks.

Attitude to larger Carnivores.

No writer on the wild dog of India omits discussion of the widely prevalent belief and assertion of native shikaris and jungle people that wild dogs will, on occasion, attack and kill the tiger; Jerdon, Sterndale, Baldwin, Sanderson, Littledale, Inverarity, Dunbar Brander, Best, Peacock, and others, all touch on this subject.

Dunbar Brander gives two pages of his book to discussion of the question. He once witnessed wild dogs annoying a tiger: and relates a very circumstantial account by villagers who heard a fight in progress: and when after some time they timidly approached the spot found a dead tigress and two dead wild dogs. He concludes that there can be no reasonable doubt that they do occasionally kill tigers.

In his article in Vol. x 'Robin Hood', evidently a Forest Officer of South India, relates occurrences in the Nullamallai Hills, east of Kurnool and south of the Kistna river, where Chenchus are the aboriginal tribe, which converted him from his previous scepticism.

Perusal of 'Robin Hood's' article takes my memory back to 1902 and the Bairnuti Inspection Shed near which Robin Hood witnessed the killing of a Chenchu she-buffalo by a tigress which killed her calf and then, the mother defending her baby, the slaying of the marauder by the angered herd. The heat of those jungles. Terrific!

At page 218 of his very interesting book *Leaves from the Diary of a Soldier and Sportsman*, Major-General M. G. Gerard,

who, as he himself told me, had shot 227 tigers before he left India, writes:-

'Two sowars of my Regiment (The Central India Horse), who had been out prospecting for me, brought back some scraps of tiger skin as big as a napkin which they had found under the following circumstances. They were informed at one jungle village that a few days previously a tiger had been seen on top of a rock on the plateau above, surrounded all day by a pack of wild dogs. During the night they heard 'a tamasha' as they termed it, and upon my men, accompanied by some of the villagers, repairing to the spot they found the scraps of skin above mentioned.'

I have recently (January 1940) obtained an authentic instance of a full grown tiger having been killed by wild dogs. Mr. G. A. Tippetts-Aylmer, a Planter in the Wynaad, South India, tells me that one day some years ago, when in the forests surrounding his Estate, he came across the skeletons of a full grown tiger and seven or eight wild dogs. These were, perhaps, ten to fifteen days old and had been eaten and pulled about by jackals, pigs, porcupines etc. By the bushes having been laid flat and other signs it was apparent that a great fight had taken place. Perhaps, in this instance also, the cause of the combat was interference by the tiger in a hunt in which the pack was engaged.

It has been sufficiently established that wild dogs of the Indian jungles can, and do, kill tigers. Such happenings may not be very common. No case of the kind has come to my personal notice during jungle excursions in many parts of India scattered over a period of fifty years in this country.

It may be that some of these attacks are the result of a quarrel, or for the sport of baiting these animals (Dunbar Brander), but probably also for food when they have not encountered other game; or on finding the blood trail of a wounded beast ('Robin Hood'); and, more likely than all, on the killing by a tiger of an animal being hunted by the dogs and the ensuing fight for their quarry by the ravaging pack. That they also kill panther and bear is shown below.

There are several recorded instances of wild dogs attacking panthers and bears. In Vol. v. at page 191 is a case of a large pack of ten or twelve couple treeing panthers in the Central Provinces. Had the business not been interrupted it is likely one or both of the panthers would have been killed. At page 194 of Vol. xviii wild dogs are said to have treed a female panther; and at page 218 Vol. xxx, R. C. Morris describes having seen wild dogs attacking a bear which they would have killed had not a companion's rifle intervened. The dogs were quite mute during the fight. He also relates that he once saw the remains of a panther killed by wild dogs in a patch of Sholaga cultivation. The jungle people (Sholagas) described the fight to him. On that occasion no dogs were killed by the panther: but that the reverse takes place was the experience of another sportsman of those same Billigirirangan Hills who found the remains of two wild dogs which had been killed and eaten by a panther. In the same article

is the account given to him by his tracker of a tiger having been killed by wild dogs. At page 744 of Vol. xxxvi is a note of a panther having been torn to pieces by wild dogs. It seemed that the panther had pounced upon one of the dogs which went to drink at a pool and the noise it made had brought the pack from the neighbouring cover. No trace of any other dog being killed in the fight was found. Following this note is an account by Colonel J. Pottinger of having witnessed a panther being driven off its kill at 9 p.m. on a bright moonlight by a pack of ten or fifteen wild dogs.

Mr. L. E. C. Hurst tells me that he saw a bear treed by wild dogs in the Chanda forests, C. P.

No instance of hyænas or jackals being killed by wild dogs is related. Perhaps there is, as Dunbar Brander remarks, a blood-brotherhood bar.

Wild dog versus Domestic dog.

A case of a wild dog being killed by two domestic dogs—a Ceylon Beagle and a Cross-bred Airdale-cum-Irish terrier—is recorded at page 949 of Vol. xxxvii. The wild dog was three-quarters grown and alone among the tea bushes. At page 343 of Vol. xxiii is a case of two pariah dogs keeping a panther off his kill after dark. And at page 428 of Vol. xxxiii of a pariah dog, tethered for a panther near a village, successfully resisting the effort of the pard to make a meal of him until the watcher in the machan was able to plant a bullet. All pariahs are not curs.

At page 200 of Vol. xxxiii Mr. Peacock asks for an instance of a single domestic dog successfully joining battle with a wild one, and gives a photograph of his bull-terrier who would have probably given the Malay wild dog pictured with him 'a very thin time' had they clashed teeth!

'My dog chased a wild dog but others came and followed him to within a few yards of me' (Pythian-Adams). Dunbar Brander mentions a similar incident actuated, probably, by curiosity.

Methods of Hunting and Seizing.

The wild dog mostly hunts by day, especially in the early hours, but not infrequently on moonlight nights, and occasionally on dark nights. They are on the move early in the morning, and it is then they get on the trail of some animal the fate of which is sealed once the hunt has begun in earnest and they have 'settled down to the long, lolling canter that can at the last run down anything that runs.' That *sometimes* packs will relinquish the chase is instanced by a stag sambhur, hunted to a river at a place where there was a long, wide pool, swimming to the further bank, the pack having him in full view. Yet the dogs abandoned the hunt. That was on the Denwa river, C.P. (L. E. C. Hurst).

They must have excellent noses. Litledale's *Cuon* bitch sought her food more by scent than by sight. Often when she did not see clearly where a bit of meat had fallen she would nose it out with great quickness. In this respect her sight improved: at first it was very bad. He describes the characteristics of the wild dog to be:—'fierce yet shy; no amount of training could teach it to be gentle; shyness and distrust of man; fierceness and curtness combined; swiftness in snatching; tenacity in hanging on these are the strong points.'

'In the adult animal' he observes, 'the senses of hearing, sight, smell, must be developed to an extraordinary degree of perfection, judging from this animal alone'. That this power of scent is extraordinary is shown by the fact that they can follow a line in the hot weather when the ground is dry as a bone.

Besides being provided with all the highly developed senses necessary for successful hunting, as also extraordinarily muscular bodies, the wild dog has acquired, as has the wolf, an aptitude for team work. That they hunt in concert is certain. This has been seen in the Nilgiri hills where open hillsides, wooded hollows, and distant views provide ideal conditions for such observations. La Personne remarks upon their team work at page 239 of Vol. xxxvi.

'Around Anaikutti and Mudumalai at the foot of the Northern slopes of the Nilgiris wild dogs come out of the jungle on to a forest road about 7 a.m., and there idle about for some time performing their morning offices and, presumably, discussing the day's plans. They must be able to communicate or team work would not be possible.' (Phythian-Adams). Those who have kept dogs of various breeds must have noticed that they undoubtedly communicate ideas.

A moonlight hunt, as also the keeping of a tiger off his kill, is described at page 443 of Vol. xxxv.

In *A Game-Book for Burma* the author remarks that he has never seen a wild dog's kill at any distance from water; and that the quarry is almost invariably run into, or runs into, a pool or a stream of water in which it is bayed or torn to pieces.

Hunted deer undoubtedly take to water, when there is any, wherein they have some chance, if not too submerged, the stags by use of antlers and those without by striking with fore-feet, of defending themselves. But there are not many pools of water, and no streams, in many dry jungles where wild dogs are numerous; so it is probable that the main cause of hunted animals being killed in pools and streams is not that the water is a place of refuge, but because hunted animals are naturally forced more and more down hill as they become exhausted. Most parts of Burma are better watered than much of the jungle country of India; so this is the reason why wild dog 'kills' in the former country are almost always found near water.

Seizure is made in several ways. Tearing bites at the flanks by which the animal is disembowelled; and, as Dunbar Brander says, seizure by the ears, nose, eyes, lips, hanging on like leeches, bearing down the head, quietly waiting and never letting go until the end. 'Robin Hood's' 'lovely little russet-red balls of fur' well

demonstrated this tenacious grip. No wonder few animals escape them. He, and others also, relate how a wild dog will cling to the back of a galloping animal and not be shaken off even when the heavy beast comes crashing to the ground.

The terrified heart-rending screams of victims of the hunt once heard can never be forgotten. It is Nature at its worst. The red fiends do not even wait until the prey is dead.

No doubt the testicles are sometimes seized. Dunbar Brander shows that this is accidental and not a habit. It is possible however that some dog may learn by accident the efficacy of such a hold. In Vol. xxxiii, at page 704, is an interesting account of pig-hunting in Java by 'native fox-red pariah dogs, *'gludak'*, said to be descended from wild dogs possibly crossed with jackal, and 24 inches at the shoulder. These had evolved perfect team work, and one of the pack, always the same dog, invariably seized by the testicles which he removed in one rending mouthful.

Mr. L. E. C. Hurst tells me that one of his pig-hunting hounds always seized a boar by this hold. At page 813 of Vol. xxxi Mr. Salim A. Ali writes that he saw a sambhur just killed by a pack of wild dogs and, strangely enough, the only part touched in the hind quarters were the testicles, which were clean missing. There are other cases also.

Seizure by the eye is common. The Chenchus of the Nullamalais affirm that wild dogs always seize game by the eyes if possible.

In some instances the eye is removed without damage to the lids. That is a fact and is due no doubt to eyes of deer being rather protuberant. Inverarity notes that the eyes are eaten immediately, but doubts whether the dogs seize at that spot. Since his day—1896—many observations have been recorded. At page 389 of Vol. xxxviii Livesey notes that a sow had both eyes removed without damage to the lids or any other injury to the head. That supports Inverarity. At page 267 of Vol. xxviii a Thamin was killed before the wild dogs had run into it: one eye was freshly torn out, the other badly gashed. That upsets Inverarity and supports the Chenchus.

Instances of single dogs successfully hunting deer are not infrequently recorded. They often hunt in pairs, but this is probably only during the breeding season. R. C. Morris notes that he once saw a solitary large dog watch a sounder of pig into a patch of tall sword-grass, and then follow the sounder into cover. It was soon chased out with loud noises! by a wild boar: and on another occasion he saw a large solitary dog watching, and edging down to, a 'tat' pony that was grazing in the jungle.

Packs may number from a small number up to as many as forty, and perhaps even more. The Author of the *Second Jungle Book* may have had good reason for writing 'The dhole do not begin to call themselves a pack till they are a hundred strong'.

Sometimes single dogs are met with, separated from the pack by some mishap, and these are no less care-free—'bold and saucy' as 'Hawkeye' aptly expresses it—in their demeanour than when in company. I have notes of three in particular. One stood by